INSTALLATION INSTRUCTIONS FOR KRUEGER STRING BASS UNIT

Transcribed from Original Document by Marc A. Mercier

For the express use of Hammond Technical (HAMTECH) List Members and MITA Techs only

This String Bass Unit, also called "Percussion Bass", is designed for use only with Hammond Organs having a 25 note flat or curved pedal board of concert model.

Important: Installation of this unit should be made only by a qualified service engineer who is experienced with the maintenance of Hammond Organs.

When properly installed, the unit will not effect the performance of the organ in any way nor should there be a noticeable increase in hum from the tone cabinets or speakers.

1 - CHOICE OF LOCATION OF UNIT

External Installation of Unit: For "Model A" organs and those that contain a chorus generator, it will be necessary to mount the String Bass Unit externally. Viewing the organ from the rear, the unit can be located at the extreme right and under the console shelf. The narrow lip of the metal case should lie flat against the rear edge of the shelf (console back removed). The four screws contained in the small envelope marked "External Mounting Screws" are then used to fasten the String Bass Unit to the underside of the console shelf, using the four holes in the wooden baseboard of the unit. The metal cover must be removed to provide access to these holes and can be replaced later. Holes of sufficient size for the passage of the cables should then be drilled through the console shelf and as close as possible to the cable-exits of the String Bass Unit.

Internal Installation Test: For most organs (except as mentioned above) the unit can be mounted vertically, inside of the console and at the extreme right (as viewed from rear of console). With some organs, depending on model and date of manufacture, a slight increase in hum may result with internal installation. This is due to the proximity of the power transformer of the unit to the input transformer of the organ. To determine whether this hum will be objectionable, it is always best to make a simple preliminary test as follows:

A. Remove organ power cord from wall socket (or other AC power source).
B. Connect AC power cord of the String Bass Unit to the auxiliary power terminal screws of the organ and set String Bass Unit vertically inside right end of console shelf (as viewed from rear of organ).
C. Reconnect organ power cord to the source of AC power; turn organ "ON" and set swell pedal to normal or slightly greater than normal organ volume (about two-thirds down).
D. Move String Bass Unit slowly out of console and back into console. If hum is objectionable when unit is inside console, external installation (see above) is recommended.
E. Disconnect organ power cord before attempting to remove String Bass power connections.

To Mount Unit Inside of Console: Place String Bass Unit in position, vertically, leaving at least 2 inches clearance between right side of unit and inside right end of console (as viewed from rear). While holding unit firmly in place, mark the position of the rear lip of the metal case with a pencil. Remove unit and install the No. 8 - 5/8" wood screw with two washers attached (from "Installation Parts" bag) near the center of this line but ¼ inch away from it (toward the front of the organ console). Place the String Bass Unit in position, making sure that the rear lip of the case slips under the large washer. The two No. 8 - 1/2 inch screws are now used to fasten the front lip of the unit.

NOTE: Guide holes should be drilled for all wood screws. For a No. 8 screw use a 1/8 inch guide-hole; other sizes in proportion.

2 – CONNECTIONS TO ORGAN GENERATOR TERMINALS

Preliminary Test: Included with these instructions are two printed Terminal Guide Strips. One of these is for use with organs having consecutive generator terminals and the other for organs having non-consecutive (scrambled) generator terminals. If there is any doubt as to whether the organ has "consecutive" or "non-consecutive" generator terminals, the following simple test can be made:

A. Connect a wire about one foot in length to the first terminal of the long terminal strip (generator strip). Terminals are counted from right to left when facing the back of the organ.
B. Adjust the organ so that a pure tone (without harmonics) of "C – 8 ft. pitch" is obtained at moderate volume from one of the manuals. This is frequency 13 of the organ.
C. While holding the "C" key to sustain this tone (a small lead weight can be used) touch the wire to Generator Terminal 18. If the tone ceases, the terminals are consecutive. If the tone ceases when Generator Terminal 8 is touched, the terminals are non-consecutive.

Connection Procedure: Choose the appropriate Printed Guide Strip and place it directly on and aligned with the generator terminals. Adhesive tape at both ends will hold it in position. Leave the tops of the terminals clear to permit soldering.

Now solder the 18 wires from the laced cable of the String Bass Unit to the generator terminals as indicated by the Guide Strip. The numbers on the guide strip are generator frequencies.

It will be seen that the String Bas Unit employs generator frequencies 13 to 30 or eighteen notes C-8 ft. to F-4 ft. pitch.

The color-coding of the wires corresponds to the RMA Color Code and is as follows:

Frequency	13 – Brown	Frequency	22 – White-Brown
"	14 – Red	"	23 – White-Red
"	15 – Orange	"	24 – White-Orange
"	16 – Yellow	"	25 – White-Yellow
"	17 – Green	"	26 – White-Green
"	18 – Blue	"	27 – White-Blue
"	19 – Violet	"	28 – White-Violet
"	20 – Grey	"	29 – White-Grey
"	21 – White	"	30 – White-Black

The Black wire from right side of the String Bass Unit should be connected to the GROUND terminal of the Generator Strip.

3 – Power and Drawbar Connections

Be sure to disconnect the organ power cord from the wall socket or other source of AC power before connecting the brown power cord of the String Bass Unit to the auxiliary power terminal screws of the organ.

Next, unsolder the wire that connects to the 8 foot pedal drawbar. This wire is then solder (and taped) to the free brown wire of the String Bass Unit. The free white wire of the String Bass Unit is then soldered to the 8 foot pedal drawbar.

4 – Installation of Pedal Contacts
For Concert Model Hammond Use the Curved Contact Assembly.

1. Remove pedalboard from organ and turn pedalboard upside down.
2. Place contact strip close to narrow end of pedalboard and align the "Low C" contact with low C pedal-key. All eighteen contacts will be centered on their respective pedal keys when the spring tips are approximately ½ inch from the pedal key ends. Locate and drill the 3 mounting holes with a 1/8 inch drill into the pedalboard ribs.
3. Fasten the contact strip with the three No. 8 – ½ inch screws, making sure that the washers are between the strip and the wood.
4. Using a contact bending tool (long-nose pliers can also be used) adjust the nylon tipped springs so that they touch the pedal-keys with minimum pressure.
5. Next adjust each rear contact spring so that it will make contact when the pedal-key is at one-half normal travel.
6. Use the metal cable clamps to secure the contact-strip cables as far back as possible and out the side nearest to the String Bass Unit.
7. Replace the pedalboard on organ console and insert 9 pin and 11 pin plugs into the matching receptacles of the String Bass Unit.

5 – MOUNTING OF CONTROL BOX

The control box is usually installed at the extreme left of the organ keyboard. Carefully mark the position for the two screws and drill 3/32 inch guide-holes. These holes must be centered accurately and drilled vertically. Any binding of the screws due to inaccurate drilling can break the bakelite flange of the box. Tighten screws so that control box is firm and does not wobble, but do this gently. The control box cable can be led under the back cover of the console.

6 – SERVICE HINTS

Loudness of Individual Notes: A reasonable variation of loudness between individual notes is normal. This is also to be expected with an actual Contra-bass Viol. Room resonance conditions, particularly when the organ is played in a small room, can aggravate these variations. Loudness variations will also be aggravated by the low-frequency resonance point of the loudspeaker that is used to reproduce the String Bass Unit.
Electrical corrections of abnormally soft or abnormally loud notes can be made by changing the value of the 68K-ohm resistor connected to the diode for the note in question. For abnormally loud notes, the resistor should be changed to 100K-ohms or possibly 270K-ohms. For abnormally soft notes, the 68K-ohm resistor can be paralleled by another one of like or lower value.
To make sure that the proper resistor corresponding to the note in question is changed, simply short any 68K-ohm resistor terminal to "ground" (black wire) to see that it cancels the note being played.

Variations in Decay Time are also normal and to be expected with an actual Contra-bass Viol. If the decay time for an individual note is abnormally long, it may be shortened by connecting a resistor of about 100k-ohms in parallel with the 3.2 microfarad, 70 Volt electrolytic capacitor in the keying circuit of the note in question. Determine proper keying circuit by shorting the 68K-ohm resistor to "Ground", as in preceding paragraph.

One Note Dead: Look for a poor contact in the pedal contact-strip or connecting cable. Can also be caused by a defective transistor or shorted diode, however, this is very rare, as both of these units are hermetically sealed, and should not deteriorate.

Pronounced Keying Click on One Note: Look for a defective 0.1 microfarad coupling capacitor or a defective diode or transistor (very rare).

No Decay Time on One Note: Open 3.2 microfarad 70 volt electrolytic capacitor or defective transistor (very rare).

Very Low Volume on One Note: Look for a defective 8 microfarad, 6 volt electrolytic capacitor or defective diode or transistor (rare).

All Notes Dead: Check D.C. Power supply of Percussion Bass Unit. D.C. output to transistors should be approximately minus 45 volts. Positive is grounded. Look for defect in Transistor Amplifier Stage (nearest to power transformer). Check for an open electrolytic coupling capacitor, or shorted 80 microfarad, 6 Volt capacitor or defective transistor.

MAAS-ROWE CARILLONS, 3015 CASITAS AVENUE, LOS ANGELES 39, CALIF.
Form #5801, Sept. 23, 1957

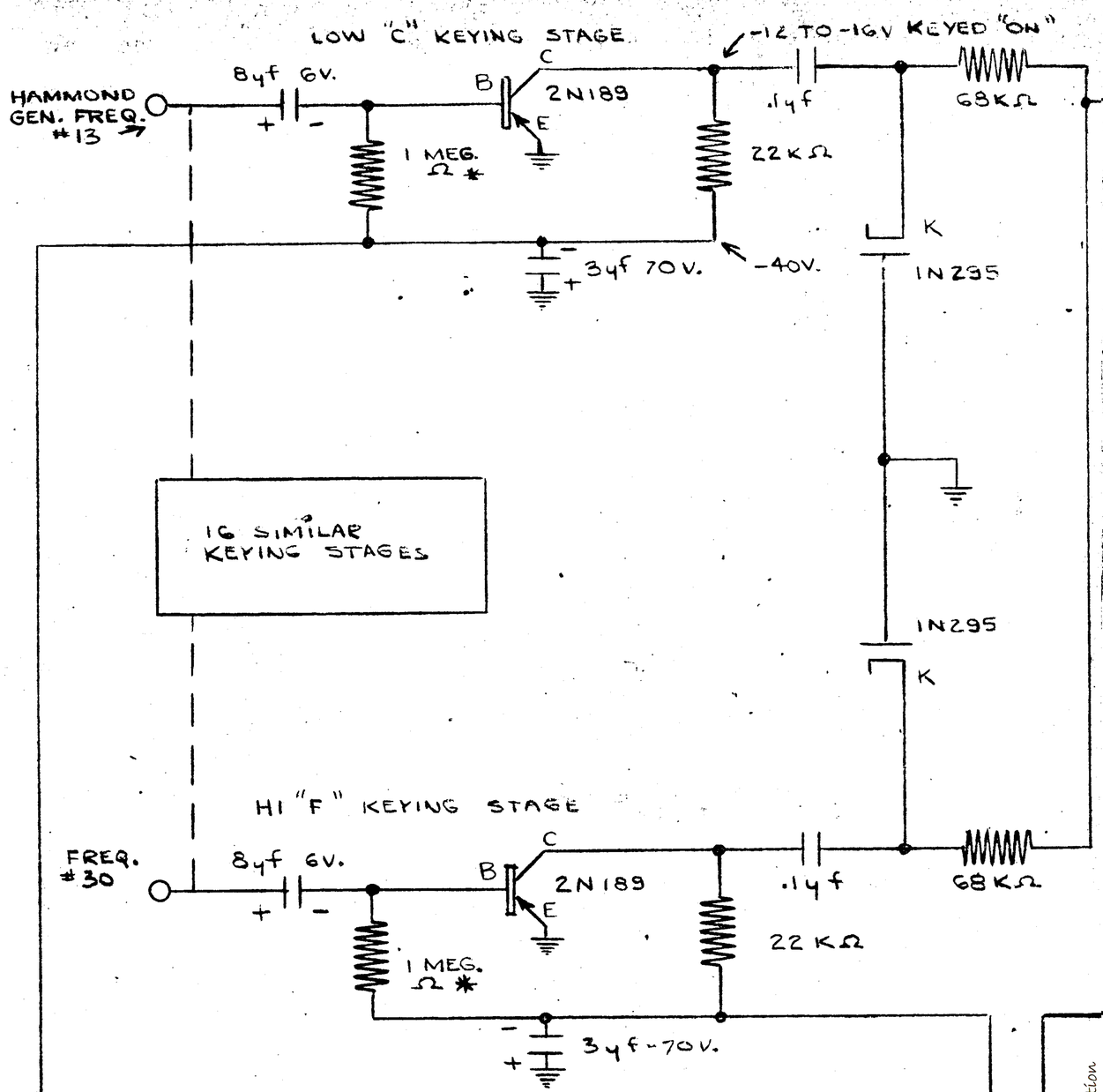
Supplement to Form #5801

Krueger String Bass Installation Instructions

Spring clips are now provided for connecting to the organ tone generator terminals. To prevent "crowding" of clips, connect clips alternately to bottoms and tops of organ generator terminals.

For a permanent installation, it is preferable to remove these clips and solder as indicated under "Connection Procedure"; Page 2 of Installation Instructions.

Supplement Form #5801, Oct. 4, '57



NOTE

THE FOLLOWING ELEMENTS ARE CONNECTED TOGETHER BY JUMPER WIRING ON BOTTOM SIDE OF TERMINAL BOARDS: EMITTERS OF KEYING STAGES; 68K RESISTORS; IN295 DIODES.

ALL RESISTORS 1/2 W. UNLESS SPECIFIED.

* RESISTOR SELECTED AT FACTORY

REV.	CHANGE	BY: DATE:	APPV.	ZONE:

SCALE:	APPROVED BY:	DATE:	DRAWN BY: PJB
B/M:	CHECKED BY:	DATE:	DATE: 18 MAR. 63

STRING BASS AMPLIFIER

±1/64 ON FRACTIONAL DIM'S. ±.005 ON DECIMAL DIM'S.	PROJECT	DRAWING NUMBER	REV.

the H. L. Kethe Co.